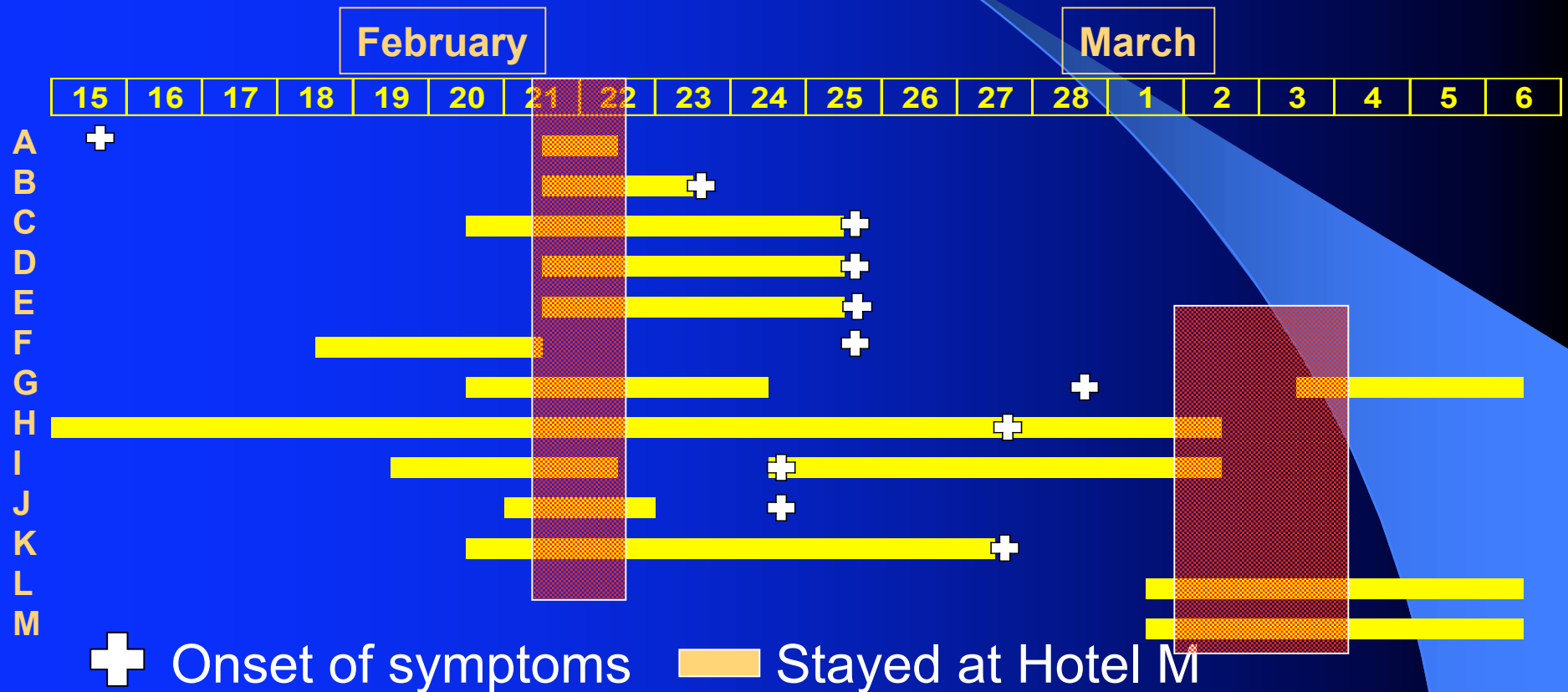


Epidemiology of SARS

Larry J. Anderson
CDC, Atlanta, GA

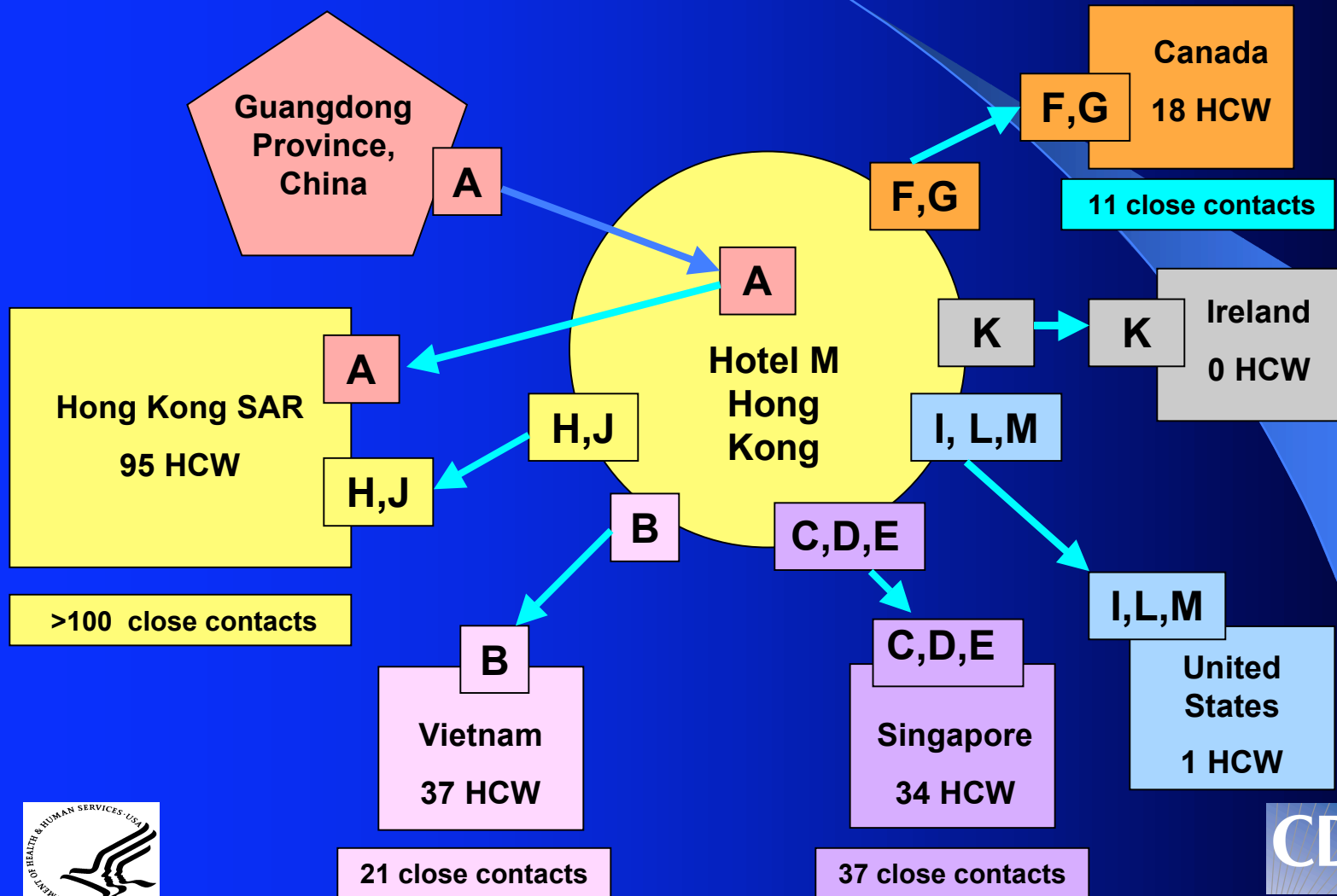


Spread in Hotel M, Hong Kong



Spread from Hotel M

Reported as of March 28, 2003



Global Response to SARS, 2003

- **February 11** -- China reports 305 cases of atypical pneumonia with 5 deaths since Nov 16, 2002 in Guangdong province
- **February 17** -- 2 persons with influenza H5N1 in Hong Kong
- **February 26** -- Dr. Carlo Urbani (WHO) notified WHO of unusual respiratory disease in patient (index patient) in Hanoi
- **March 5-11** -- HCW caring for index patient in Hanoi develop similar illness. Similar illness in HCW in HK.
- **March 12** -- Who issues Global alert for SARS



SARS Case Definition

Suspect case

- Respiratory disease of unknown etiology after 2/01/03
- Fever ($>100.4^{\circ}\text{F}$) and cough or shortness of breath
- >1 of cough, SOB, dyspnea, hypoxia, or X-ray of pneumonia or ARDS

AND Exposure history

- Recent travel to an area with SARS transmission; or
- Close contact with a suspected SARS case

Probable case

- Suspect case with chest x-ray or autopsy findings of pneumonia or unexplained ARDS



Transmission of SARS

- Observations
 - Preponderance of cases in HCW or household contacts
 - Infrequent instances of community transmission
 - Super spreading events
 - Prolonged detection of virus
- Modes of transmission
 - Close contact – droplet, fomites, direct contact
 - Airborne
 - Fecal-oral



SARS Containment Strategies

Local spread

- Isolation cases
- Infection control measures
- Quarantine contacts
- Hospital/school closures

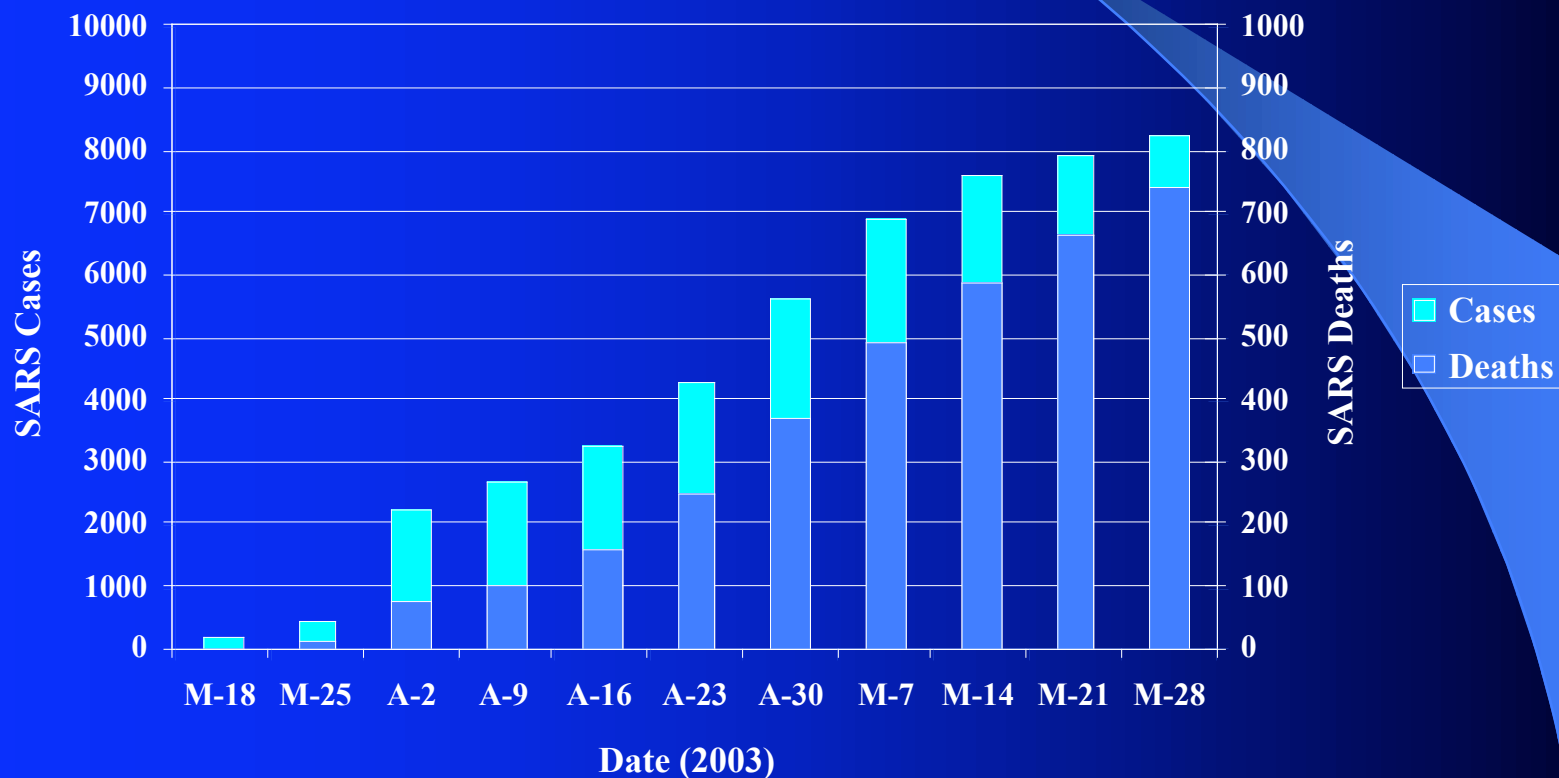
Export/Import

- Travel advisories
- Screening departing airline passengers
- Information to passengers arriving from affected areas
 - US -- >5000 flights met and >1,000,000 health alert notices distributed by early May, 2003

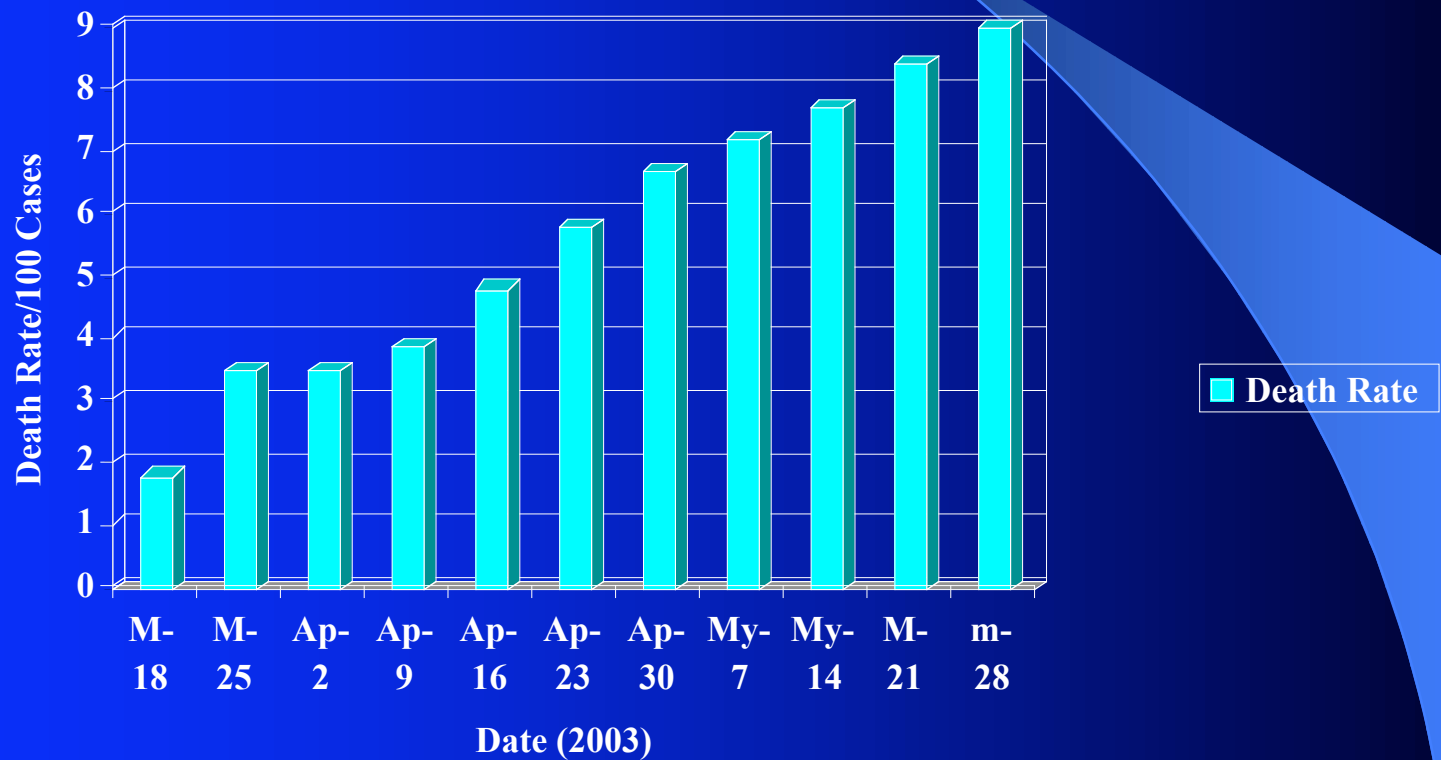


Global SARS Cases and Deaths, March-May 2003

<http://www.who.int/csr/sars/country/en/>



Global SARS Death Rate, May 2003



Global SARS Cases (Probable)

May 21, 2003

| Country | Cases | Deaths | Case fatality |
|--------------|-------------|------------|---------------|
| Canada* | 140 | 23 | 16.4% |
| China | 5249 | 296 | 5.6% |
| Hong Kong | 1719 | 255 | 14.8% |
| Singapore* | 206 | 28 | 13.6% |
| Taiwan | 418 | 52 | 12.4% |
| Thailand* | 8 | 2 | 25% |
| U.S.* | 66 | 0 | 0% |
| Vietnam* | 63 | 5 | 7.9% |
| Other | 87 | 5 | 5.7% |
| Total | 7956 | 666 | 8.4% |



*No recent local transmission



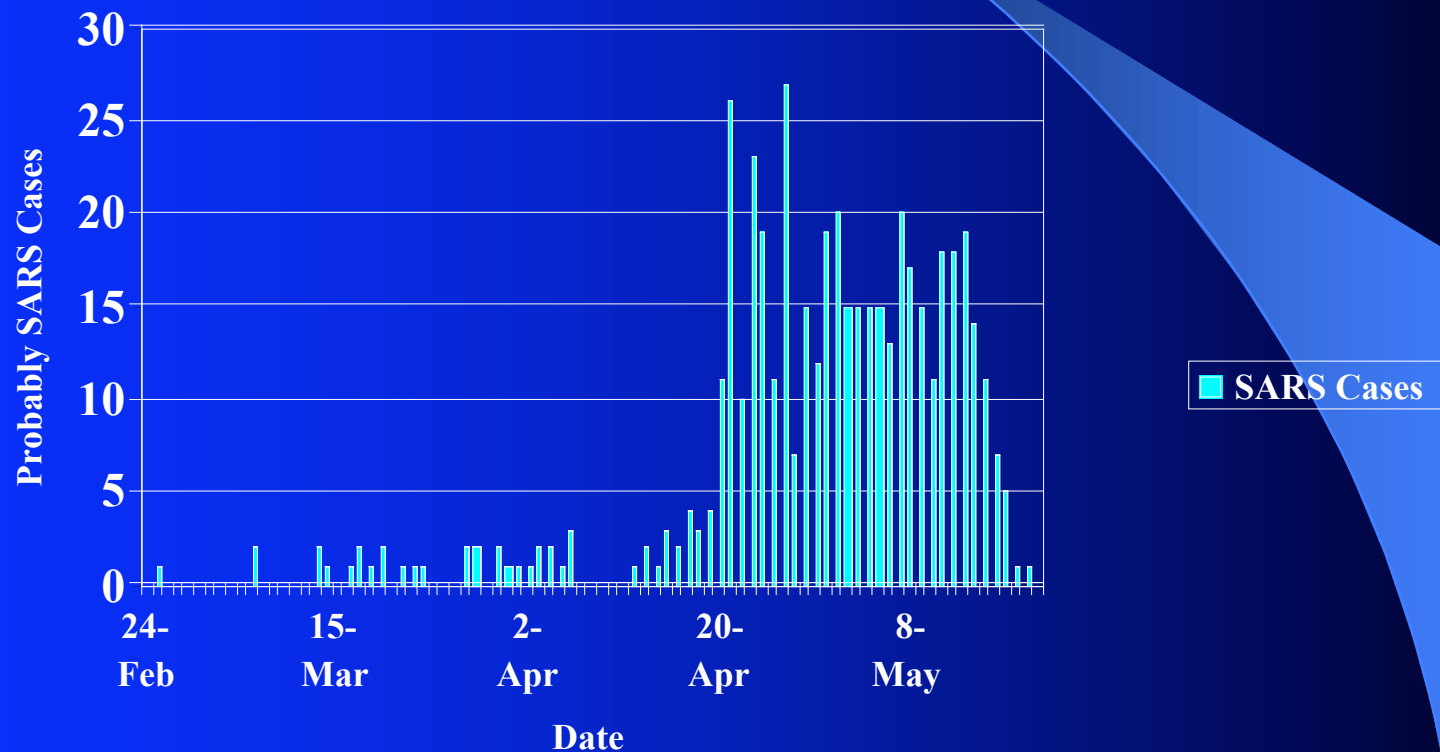
Recurrence of SARS in Toronto

- SARS in HCW, patients and visitors
 - 13 probably cases (2 HCW, 9 Pt., 1 visitor, 1 family member)
 - 23 suspect cases (10 HCW, 8 Pt and visitors, 5 under investigation)
- Source under investigation

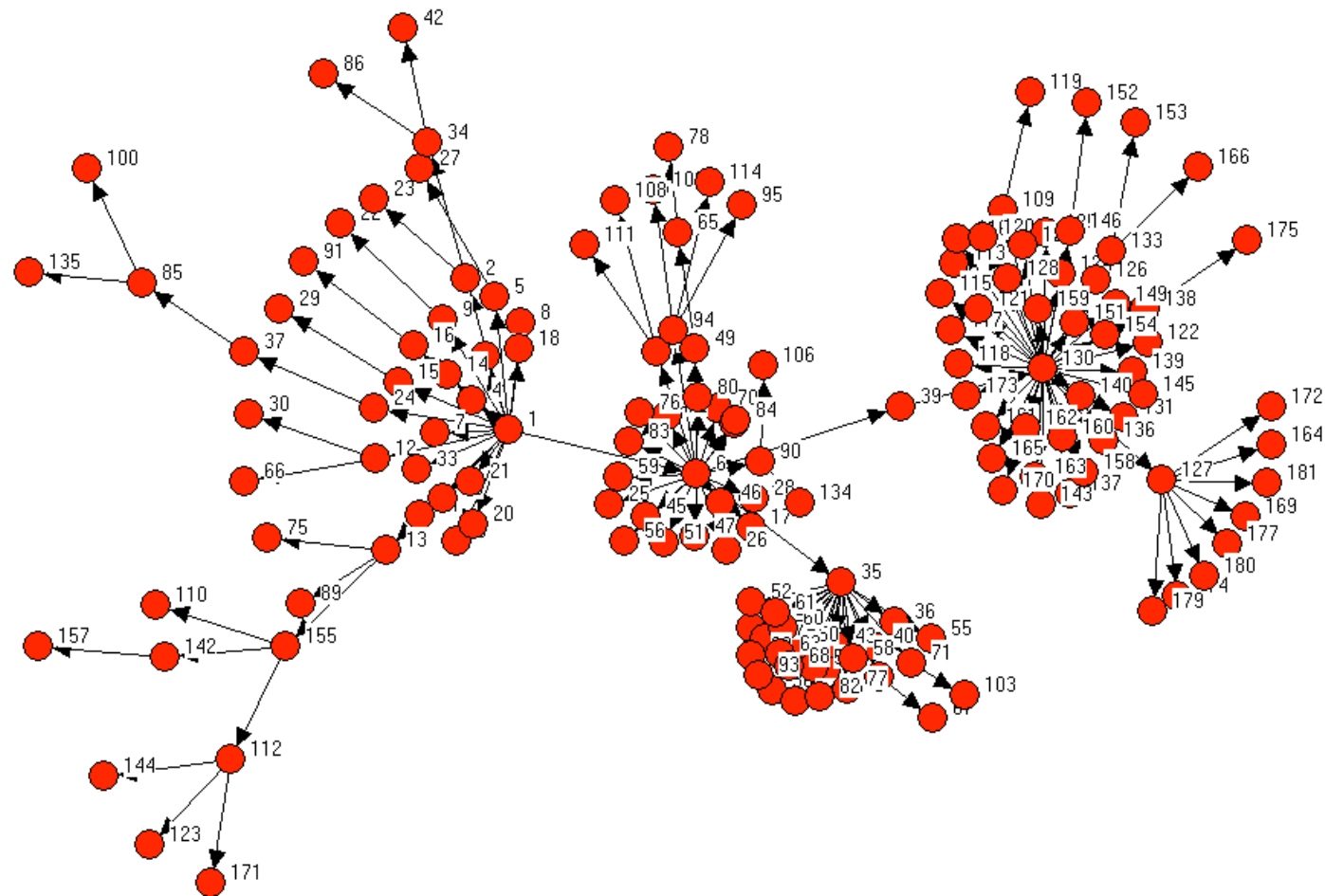


SARS Outbreak in Taiwan, Feb 25- May 20, 2003

MMWR 2003;52:461-466



Super Spreading Events Singapore



SARS CoV+/- Cases, U.S. 2003

| <u>Type of Case</u> | <u>No.</u> | <u>CoV+</u> | <u>CoV-</u> | <u>Pending</u> |
|---------------------|------------|-------------|-------------|----------------|
| Probable | 66 | 7 | 25 | 34 |
| Suspect | 297 | 0 | 111 | 186 |



Observations

- **Can spread rapidly**
 - Factors associated with spread, e.g. super spreading events
- **Can be contained**
 - Detection
 - New settings (India, Africa)
 - Immune suppressed patients – AIDS
 - Persistent infection
 - Animal reservoir and reintroduction
- **Frequent serious complications**
 - Risk factors
 - Course of infection/disease

